WHAT IS CLAIMED IS:

1. An optical module comprising:

a photodiode or avalanche photodiode for converting a light signal into an electric signal;

a transimpedance amplifier for current/voltage conversion;

a voltage amplifier; and

a clock and data recovery IC,

the clock and data recovery IC having a phase locked loop, the phase locked loop comprising:

a voltage-controlled oscillator;

a +45° phase shifter which causes the phase of one branched output signal from the voltage-controlled oscillator to lead 45°;

a -45° phase shifter which causes the phase of the other branched output signal from the voltage-controlled oscillator to lag 45°;

a selector for selecting either data provided from a data input pad or an output from the -45° phase shifter;

a phase detector which compares the phase of an output selected by the selector with the phase of an output from the +45° phase shifter; and

a filter circuit which receives an output signal from the phase detector and which provides an output signal to the voltage-controlled oscillator.

2. An optical module according to claim 1, wherein when a clock signal is reproduced using a data signal inputted from the data input pad, both an output signal from the +45° phase shifter and a signal from the data input pad are fed to the phase detector.

3. An optical module comprising:

a photodiode or an avalanche photodiode for converting a light signal into an electric signal;

a transimpedance amplifier for current/voltage conversion;

a voltage amplifier; and

a clock and data recovery IC,

the clock and data recovery IC having a phase locked loop, the phase locked loop comprising:

a voltage-controlled oscillator;

a +90° phase shifter which causes the phase of one branched output signal from the voltage-controlled oscillator to lead 90°;

a selector for selecting either the other branched output signal from the voltage-controlled oscillator or data provided from the data input pad;

a phase detector which compares an output selected by the selector with the phase of an output from the +90° phase shifter; and

a filter circuit which receives an output signal from the phase detector and which provides an output signal to the

voltage-controlled oscillator.

4. An optical module according to claim 3, wherein when a clock signal is reproduced using a data signal inputted from the data input pad, both an output signal from the +90° phase shifter and a signal from the data input pad are inputted to the phase detector.

5. An optical module comprising:

a photodiode or avalanche photodiode for converting a light signal into an electric signal;

a transimpedance amplifier for current/voltage conversion;

a voltage amplifier; and

a clock and data recovery IC,

the clock and data recovery IC having a phase locked loop, the phase locked loop comprising:

a voltage-controlled oscillator;

a -90° phase shifter which causes the phase of one branched output signal from the voltage-controlled oscillator to lag 90°;

a selector for selecting either data provided from a data input pad or an output from the -90° phase shifter;

a phase detector which compares the phase of an output selected by the selector with the phase of the other branched output signal from the voltage-controlled oscillator; and

a filter circuit which receives an output signal from the phase detector and which provides an output signal to the

voltage-controlled oscillator.

6. An optical module according to claim 5, wherein when a clock signal is reproduced using a data signal inputted from the data input pad, both the other branched output signal from the voltage-controlled oscillator and a signal from the data input pad are inputted to the phase detector.

7. An optical module according to claims 1, wherein a frequency divider is disposed between the voltage-controlled oscillator and the selector.

8. An optical module according to claims 3, wherein a frequency divider is disposed between the voltage-controlled oscillator and the selector.

9. An optical module according to claims 5, wherein a frequency divider is disposed between the voltage-controlled oscillator and the selector.

10. An optical module comprising:

a photodiode or avalanche photodiode for converting a light signal into an electric signal;

a transimpedance amplifier for current/voltage conversion;

a voltage amplifier; and

a clock and data recovery IC,

the clock and data recovery IC having been subjected to adjustment of a jitter transfer bandwidth before being mounted on the optical module.

11. An optical module according to claim 8, wherein the clock and data recovery IC has a phase locked loop, the phase locked loop including a voltage-controlled oscillator, a phase shifter for changing the phase of an output signal from the voltage-controlled oscillator, a selector for selecting either data provided from a data input pad or an output from the voltage-controlled oscillator, a phase detector, and a filter circuit which receives an output from the phase detector and which provides an output signal to the voltage-controlled oscillator.

12. A method of making an optical module, comprising the steps of:

adjusting a jitter transfer bandwidth of a clock and data recovery IC;

mounting the thus-adjusted clock and data recovery IC on an optical module; and

mounting on the optical module a photodiode or avalanche photodiode for converting a light signal into an electric signal, a transimpedance amplifier for current/voltage conversion, and a voltage amplifier.

13. A method according to claim 10, wherein in the step of adjusting a jitter transfer bandwidth of the clock and data recovery IC, the clock and data recovery IC has a data input pad, a data output pad, a clock output pad, a phase detector, a voltage-controlled oscillator, and a phase shifter for changing

the phase of an output waveform provided from the voltage-controlled oscillator, and at least two output waveforms outputted from the voltage-controlled oscillator and about 90° out of phase with each other are inputted to the phase detector.

14. An optical communication system comprising:

a multiplexer for time-multiplexing a signal;

a optical transmitter;

an optical fiber for the transmission of a light signal outputted from the optical transmitter;

a optical receiver which receives a light signal from the optical fiber and converts it into an electric signal and which reproduces a clock ; and

a demultiplexer which separates the electric signal,

wherein the optical receiver is the optical module described in any of claims 1, 3, 5, 10.